

=> fil hcaplu  
FILE 'HCAPLUS' ENTERED AT 16:22:57 ON 05 SEP 2002  
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FILE 'HCAPLUS' ENTERED AT 16:05:52 ON 05 SEP 2002

FILE 'REGISTRY' ENTERED AT 16:05:56 ON 05 SEP 2002

	E GLUCOSE/CN
L1	833 S GLUCOSE?/CN
	E FRUCTOSE/CN
L2	619 S FRUCTOSE?/CN
	E SORBOSE/CN
L3	117 S SORBOSE?/CN
	E SUCROSE/CN
L4	619 S SUCROSE?/CN
	E ISOMALTULOSE/CN
L5	1 S E3
	E XYLOSE/CN
L6	513 S XYLOSE?/CN
	E MALTOSE/CN
L7	224 S MALTOSE?/CN
	E LACTOSE/CN
L8	129 S LACTOSE?/CN

FILE 'HCAPLUS' ENTERED AT 16:11:51 ON 05 SEP 2002

L9	359348 S L1 OR GLUCOSE?
L10	63293 S L2 OR FRUCTOSE?
L11	3501 S L3 OR SORBOSE?
L12	136341 S L4 OR SUCROSE?
L13	581 S L5 OR ISOMALTULOSE?
L14	26421 S L6 OR XYLOSE?
L15	24489 S L7 OR MALTOSE?
L16	57030 S L8 OR LACTOSE?
L17	15461 S (L9 OR L10 OR L11 OR L12 OR L13 OR L14 OR L15 OR L16) AND ?CO
L18	99215 S (PLATINUM OR PALLADIUM OR RHODIUM OR RUTHENIUM OR PT OR PD OR
L19	75 S (L18 AND CATALYST?) AND NANOPARTICLE?
L20	23552 S L18 (L) CATALYST?
L21	9 S L20 AND POLYMER? (L) NANOPARTICLE?

FILE 'HCAPLUS' ENTERED AT 16:22:57 ON 05 SEP 2002

FILE 'REGISTRY' ENTERED AT 16:23:34 ON 05 SEP 2002

FILE 'HCAPLUS' ENTERED AT 16:25:13 ON 05 SEP 2002

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L17	15461 S (L9 OR L10 OR L11 OR L12 OR L13 OR L14 OR L15 OR L16) AND ?CO
L18	99215 S (PLATINUM OR PALLADIUM OR RHODIUM OR RUTHENIUM OR PT OR PD OR
L19	75 S (L18 AND CATALYST?) AND NANOPARTICLE?
L20	23552 S L18 (L)CATALYST?
L21	9 S L20 AND POLYMER?(L)NANOPARTICLE?

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FILE COVERS 1907 - 5 Sep 2002 VOL 137 ISS 10  
FILE LAST UPDATED: 4 Sep 2002 (20020904/ED)

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L18 99215 SEA FILE=HCAPLUS (PLATINUM OR PALLADIUM OR RHODIUM OR RUTHENIUM  
OR PT OR PD OR RH OR RU) AND (COPPER OR NICKEL OR CU OR NI)  
L20 23552 SEA FILE=HCAPLUS L18 (L)CATALYST?  
L21 9 SEA FILE=HCAPLUS L20 AND POLYMER?(L)NANOPARTICLE?

=> d ibib abs hitrn l21 1-9

L21 ANSWER 1 OF 9 HCAPLUS COPYRIGHT 2002 ACS  
ACCESSION NUMBER: 2002:351831 HCAPLUS  
DOCUMENT NUMBER: 137:109533  
TITLE: Synthesis and characterization of structurally  
well-defined **polymer**-inorganic hybrid  
**nanoparticles** via atom transfer radical  
polymn.  
AUTHOR(S): Bai, Jie; Pang, Jie-Bin; Qiu, Kun-Yuan; Wei, Yen  
CORPORATE SOURCE: Department of Polymer Science & Engineering, College  
of Chemistry & Molecular Engineering, Peking  
University, Beijing, 100871, Peop. Rep. China  
SOURCE: Chinese Journal of Polymer Science (2002), 20(3),  
261-267  
CODEN: CJPSEG; ISSN: 0256-7679  
PUBLISHER: Springer-Verlag  
DOCUMENT TYPE: Journal  
LANGUAGE: English

AB Atom transfer radical polymn. (ATRP) using cuprous chloride/2,2'-bipyridine (bipy) was applied to graft polymn. of styrene on the surface of silica **nanoparticles** to synthesize **polymer-inorg. hybrid nanoparticles**. 2-(4-Chloromethyl-phenyl) ethyltriethoxy silane (CTES) was immobilized on the surface of silica **nanoparticles** through condensation reaction of the silanol groups on silica with tri-ethoxy silane group of CTES. Then ATRP of St was initiated by this surface-modified silica **nanoparticles** bearing benzyl chloride groups, and formed polystyrene graft chains on the surface of silica **nanoparticles**. The thickness of the graft chains increased with reaction time. End group anal. confirmed the occurrence of ATRP. Thermal anal. indicated that thermal stabilization of these resulting hybrid **nanoparticles** also increases with polymn. conversion. The results above show that this "grafting from" reaction could be used for the prepn. of **polymer-inorg. hybrid nanoparticles** with controlled structure of the **polymer's** end groups.

REFERENCE COUNT: 15 THERE ARE 15 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L21 ANSWER 2 OF 9 HCAPLUS COPYRIGHT 2002 ACS  
 ACCESSION NUMBER: 2001:265329 HCAPLUS  
 DOCUMENT NUMBER: 134:289670  
 TITLE: Colloidal rod particles as nanobar codes  
 INVENTOR(S): Natan, Michael J.; Mallouk, Thomas E.  
 PATENT ASSIGNEE(S): The Penn State Research Foundation, USA  
 SOURCE: PCT Int. Appl., 86 pp.  
 CODEN: PIXXD2  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 4  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2001025002	A1	20010412	WO 2000-US27093	20001002
W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM			
RW:	GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG			
EP 1227929	A1	20020807	EP 2000-968555	20001002
R:	AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL			
PRIORITY APPLN. INFO.:			US 1999-157326P	P 19991001
			US 2000-189151P	P 20000314
			US 2000-190247P	P 20000317
			US 2000-194616P	P 20000405
			US 2000-598395	A 20000620
			WO 2000-US27093	W 20001002

AB Freestanding particles comprising a plurality of segments, wherein the particle length is from 10 nm to 50  $\mu$ m and the particle width is from 5 nm to 50  $\mu$ m. Nanobar codes are striped, cylindrical metal shaped nanoparticles whose compn. is varied along the cylinder's length. Like conventional barcodes, whose identity is revealed by differential contrast of black and white stripes, nanobar codes are identified in conventional optical microscopes using the differential reflectivity of adjacent metal stripes: Au has a very different reflectivity than Ag or Pt. Thus, the inventors can make an essentially limitless no. of uniquely identifiable particles, which can be used either as tags (like fluorophores or quantum dots) or as substrates (like a spot on a gene chip or a labeled bead). Examples of multiplexed assays using nanobar codes are given. A highly specific capture chem. is used on nanobar codes to sample particular analytes, and another in which a general capture chem. is used to sample general classes of analytes. Analyte detection using fluorescence and mass spectrometry is described, as is utility for both biol. and environmental samples.

REFERENCE COUNT: 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L21 ANSWER 3 OF 9 HCAPLUS COPYRIGHT 2002 ACS

ACCESSION NUMBER: 2000:666737 HCAPLUS

DOCUMENT NUMBER: 133:254142

TITLE: Catalytic method for modifying carbohydrates, alcohols, aldehydes or polyhydroxy compounds  
INVENTOR(S): Capan, Emine; Hahnlein, Marc Sascha; Prusse, Ulf; Vorlop, Klaus-Dieter; Haji Begli, Alireza

PATENT ASSIGNEE(S): Sudzucker Aktiengesellschaft, Germany

SOURCE: PCT Int. Appl., 45 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: German

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2000055165	A1	20000921	WO 2000-EP2351	20000316
W: AU, CA, IL, US				
RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
DE 19911504	A1	20001019	DE 1999-19911504	19990316
EP 1165580	A1	20020102	EP 2000-925117	20000316
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI				

PRIORITY APPLN. INFO.: DE 1999-19911504 A 19990316  
WO 2000-EP2351 W 20000316

AB Industrial conversion of the title compds. in aq. phase is carried out in the presence of metal **catalysts** consisting of **polymer**-stabilized **nanoparticles**. A **catalyst** of this type is not deactivated by the conversion reaction as long as the stabilizing interaction between the **polymer** and the **nanoparticles** is maintained. For example, activity of an Al<sub>2</sub>O<sub>3</sub>-supported, poly(vinylpyrrolidone)-stabilized **Pt** colloid **catalyst**

(prepn. given) in oxidn. of sorbose with O remained unchanged after 10 repeated expts. whereas the activity of a customary Al<sub>2</sub>O<sub>3</sub>-supported Pt catalyst decreased to .apprx.35% after 10 runs.

REFERENCE COUNT: 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L21 ANSWER 4 OF 9 HCAPLUS COPYRIGHT 2002 ACS

ACCESSION NUMBER: 2000:521215 HCAPLUS

DOCUMENT NUMBER: 133:200065

TITLE: Electrochemical preparation of Ru-Ni binary nanoparticles and their applications to electro-oxidation of ethanol

AUTHOR(S): Kim, Jae-Woo; Park, Su-Moon

CORPORATE SOURCE: School of Environmental Engineering and Department of Chemistry, Pohang University of Science and Technology, Pohang, 790784, S. Korea

SOURCE: Electrochemical and Solid-State Letters (2000), 3(8), 385-388

CODEN: ESLEF6; ISSN: 1099-0062

PUBLISHER: Electrochemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Nanoparticles of Ni, Ru, and Ni-Ru

oxides were prepd. by electrodeposition of these metals coordinated into the dendrimer mols., and their electrochem. and catalytic activities were evaluated. The dendrimer mols. used were amine- and hydroxyl-terminated poly(amidoamine) dendrimers. The nanosized particles thus prepd. showed significantly enhanced catalytic activities for oxidn. of ethanol compared to bulk metal oxide electrodes.

REFERENCE COUNT: 27 THERE ARE 27 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L21 ANSWER 5 OF 9 HCAPLUS COPYRIGHT 2002 ACS

ACCESSION NUMBER: 2000:492945 HCAPLUS

DOCUMENT NUMBER: 133:95064

TITLE: Preparation and catalysis of polymer-protected coinage metal nanoclusters

AUTHOR(S): Shiraishi, Yukihide; Hirakawa, Kazutaka; Toshima, Naoki

CORPORATE SOURCE: Department of Materials Science and Engineering, Science University of Tokyo in Yamaguchi, Onoda-shi, Yamaguchi, 756-0884, Japan

SOURCE: Kobunshi Ronbunshu (2000), 57(6), 346-355

CODEN: KBRBA3; ISSN: 0386-2186

PUBLISHER: Kobunshi Gakkai

DOCUMENT TYPE: Journal

LANGUAGE: Japanese

AB Prepn., characterization and catalysis of polymer-protected coinage metal nanoclusters were investigated, esp. from the viewpoint of bimetalization. Poly (N-vinyl-2-pyrrolidone) (PVP)-protected Au/Rh bimetallic nanoclusters with an av. diam. of 2.6 nm were prepd. by alc. redn. of HAuCl<sub>4</sub> and RhCl in the presence of PVP. The Au/Rh bimetallic nanoclusters having an Au-core/Rh-shell structure work as more active catalysts for visible-light-

induced hydrogen generation from water than the corresponding Au and Rh monometallic nanoclusters. Ag nanoclusters protected by poly(sodium acrylate) (PSA) were prepd. by UV irradiation of an alc.-water soln. of silver perchlorate in the presence of PSA and were applied to the **catalyst** for oxidation of ethylene. The activity of Ag nanoclusters thus prepd. remarkably increases with increasing the reaction temp. Addition of cesium and rhenium ions increases the catalytic activity of PSA-Ag nanoclusters as well. Thus, PSA plays an important role in this system. PVP-protected Cu/Pd alloy nanoclusters were prepd. by reduction in glycol at 198.degree.C, revealing high activity as a **catalyst** for hydration of acrylonitrile to acrylamide as well as for partial hydrogenation of 1,3-cyclooctadiene to cyclooctene.

L21 ANSWER 6 OF 9 HCAPLUS COPYRIGHT 2002 ACS  
 ACCESSION NUMBER: 2000:115729 HCAPLUS  
 DOCUMENT NUMBER: 132:119249  
 TITLE: Method for the production of stable immobilized enzyme layers to be used as sensors and in bioreactors  
 INVENTOR(S): Heilmann, Andreas; Kiesow, Andreas; Spohn, Uwe; Janasek, Dirk  
 PATENT ASSIGNEE(S): Fraunhofer-Gesellschaft zur Foerderung der Angewandten Forschung e.V., Germany  
 SOURCE: Ger. Offen., 6 pp.  
 CODEN: GWXXBX  
 DOCUMENT TYPE: Patent  
 LANGUAGE: German  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 19835869	A1	20000217	DE 1998-19835869	19980807

AB The invention concerns the production of durable enzyme layers for biosensors and bioreactors by applying the enzyme onto a support and protecting it with thin **polymer** film that is deposited along with metal **nanoparticles** using physical and chemical vapor vacuum techniques. Redox mediators can be deposited along with the metal **nanoparticles**. The enzyme is loaded with a pipetting system onto a thin support in the vacuum chamber in the presence of cryoprotectants; supports are **polymer** foils, ceramic materials or porous metals. In addition to the protecting **polymer** layer, a second layer can be deposited, that is from **polymer** or metal.

REFERENCE COUNT: 2 THERE ARE 2 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L21 ANSWER 7 OF 9 HCAPLUS COPYRIGHT 2002 ACS  
 ACCESSION NUMBER: 1999:800014 HCAPLUS  
 DOCUMENT NUMBER: 132:109703  
 TITLE: Catalytic Pd Nanoparticles  
 Synthesized Using a Lyotropic Liquid Crystal  
**Polymer** Template  
 AUTHOR(S): Ding, Julia H.; Gin, Douglas L.  
 CORPORATE SOURCE: Department of Chemistry, University of California,  
 Berkeley, CA, 94720-1460, USA

SOURCE: Chemistry of Materials (2000), 12(1), 22-24  
 CODEN: CMATEX; ISSN: 0897-4756  
 PUBLISHER: American Chemical Society  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English

AB A lyotropic liq. crystal [LLC] template-based synthesis method was developed to obtain catalytic **Pd nanoparticles**. The **Pd nanoparticle** composite was prep'd. by ion exchange of **Pd(II)** into the ionic channels of a crosslinked inverted hexagonal phase of sodium 3,4,5-tris(11'-acryloyloxyundecyloxy)benzoate LLC **polymer** and subsequently reducing the **Pd(II)** to **Pd(0)** with H<sub>2</sub>. The resulting composite contains **Pd** particles of 4 to 7 nm in diam. and exhibits high catalytic activity in hydrogenation and Heck coupling reactions. Hydrogenation of benzaldehyde was carried out using the **catalyst**; high selectivity was obs'd. for conversion to benzyl alc. in 98% yield in 3 h. The **catalyst** was used in Heck coupling of aryl halides with Bu acrylate or styrene; the composite exhibited comparable or better catalytic activity than colloidal **Pd** or **Pd**-grafted MCM-41. Although the template approach was initially demonstrated with **Pd**, the concept can be applied to other transition metals or lanthanides to produce nanostructured metal ion composites and **nanoparticles**. Irreversible near-quant. ion exchange of **Cu(II)** and **Zn(II)** into crosslinked inverted hexagonal phases of the LLC **polymer** was achieved.

REFERENCE COUNT: 26 THERE ARE 26 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L21 ANSWER 8 OF 9 HCAPLUS COPYRIGHT 2002 ACS  
 ACCESSION NUMBER: 1999:659813 HCAPLUS  
 DOCUMENT NUMBER: 131:291870  
 TITLE: Polymer-Protected **Ni/Pd** Bimetallic Nano-Clusters: Preparation, Characterization and Catalysis for Hydrogenation of Nitrobenzene  
 AUTHOR(S): Lu, Ping; Teranishi, Toshiharu; Asakura, Kiyotaka; Miyake, Mikio; Toshima, Naoki  
 CORPORATE SOURCE: Department of Applied Chemistry School of Engineering, The University of Tokyo, Tokyo, 113-8656, Japan  
 SOURCE: Journal of Physical Chemistry B (1999), 103(44), 9673-9682  
 CODEN: JPCBFK; ISSN: 1089-5647  
 PUBLISHER: American Chemical Society  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English

AB Well-dispersed and stable colloidal dispersions of polymer-protected **Ni/Pd** bimetallic nanoclusters have been obtained over an entire compn. range by an improved polyol redn. method, in which **nickel(II)** sulfate and **palladium(II)** acetate were reduced at high temp. by ethylene glycol in the presence of poly(N-vinyl-2-pyrrolidone). Transmission electron microscopy indicates that these bimetallic nanocluster particles have definitely monodispersed size-distributions, with each particle contg. both **nickel** and **palladium** atoms. The alloy structure has also been shown by X-ray diffraction and extended X-ray absorption fine-structure anal. X-ray absorption near-edge spectroscopic and X-ray photoelectron spectroscopic



data have confirmed that the **nickel** in the bimetallic nanoclusters is in the zero-valence state, as stabilized by the presence of **Pd**. Dispersions of these bimetallic nanoclusters were used as homogeneous **catalysts** for hydrogenation of nitrobenzene at 30 .degree.C under an atm. pressure of hydrogen. The catalytic activities are demonstrated to be dependent on the metal compn. of the particles. The highest activity can be achieved for a bimetallic nanocluster with a molar ratio of **Ni:Pd** = 2:3, which exhibits 3.5 times greater activity than that of a typical colloidal **palladium catalyst**.

REFERENCE COUNT: 69 THERE ARE 69 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L21 ANSWER 9 OF 9 HCAPLUS COPYRIGHT 2002 ACS

ACCESSION NUMBER: 1998:496511 HCAPLUS

DOCUMENT NUMBER: 129:176411

TITLE: New Synthesis Method of Poly(diphenylsilylenemethylene ) Thin Films

AUTHOR(S): Rossignol, Fabrice; Nakata, Yoshinori; Nagai, Hideaki; Konno, Shigeru; Okutani, Takeshi; Suzuki, Masaaki; Kushibiki, Nobuo; Murakami, Masashi; Ogawa, Takuya

CORPORATE SOURCE: Hokkaido National Industrial Research Institute, Toyohira-ku, Sapporo, 062-8517, Japan

SOURCE: Chemistry of Materials (1998), 10(8), 2047-2049  
CODEN: CMATEX; ISSN: 0897-4756

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Poly(diphenylsilylenemethylene) [PDPhSM] thin films were prepd. by thermal polymn. using a metal **nanoparticle** activator. 1,1,3,3-Tetraphenyl-1,3-disilacyclobutane (TPDC) 10 .mu.m thin films were formed on c-Si wafers by vacuum evapn. at 1 Pa and const. temp. of 400 K and deposition rate of 1 .mu.m/min. Fine metal particles were deposited onto the TPDC films by sputtering in air or argon plasma for 4 min. or using masks; the metallic targets were **Pt/Pd**, **Pt**, **Cu**, **Au**, or **Ag** at const. voltage (500 V) and current (8 mA). Metal/TPDC/Si-wafer composites were heated in an elec. furnace in an air or argon to **polymerize** the TPDC at 400-550 K from 10 min to 20 h. Continuous PDPhSM thin films were formed where the film was covered by metal particles, allowing the fabrication of millimetric **polymer** patterns with complex shapes; polymn. was mainly confirmed by FTIR. The methodol. is suitable for prodn. of thin films which are difficult to fabricate by conventional methods such as spin coating; the method uses conventional devices suitable for mass prodn.; and the morphol. of films can be controlled through the metal used.

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     (c) 1998 Inst for Sci Info  
 File 440:Current Contents Search(R) 1990-2002/Sep 05  
     (c) 2002 Inst for Sci Info

?ds

Set	Items	Description
S1	58237	(GLUCOSE? OR FRUCTOSE? OR SORBOSE? OR SUCROSE? OR ISOMALTULOSE? OR XYLOSE? OR MALTOSE? OR LACTOSE? OR SUGAR? OR CARBOHYDRATE?) AND (CONVERSION OR BIOCONVER?)
S2	31137	((PLATIMUN OR PALLADIUM OR RHODIUM OR RUTHENIUM OR PT OR PD OR RH OR RU) AND (COPPER? OR NICKEL OR CU OR NI)) AND CATALYST?
S3	250	S1 AND S2
S4	38	RD (unique items)

S5 1 S4 AND POLYMER?(S)NANOPARTICLE?  
?t5/7/1

5/7/1 (Item 1 from file: 351)  
DIALOG(R)File 351:Derwent WPI  
(c) 2002 Thomson Derwent. All rts. reserv.

013439570

WPI Acc No: 2000-611513/200058

Avoiding catalyst deactivation in industrial conversion of carbohydrates, alcohols, aldehydes or polyhydroxy compounds in the aqueous phase by using a metal catalyst formed of polymer-stabilized nanoparticles

Patent Assignee: SUEDZUCKER AG (SUED-N); SUEDZUCKER AG MANNHEIM/OCHSENFURT (SUED-N)

Inventor: CAPAN E; HAEHNLEIN M S; HAJI BEGLI A; PRUESSE U; VORLOP K

Number of Countries: 023 Number of Patents: 005

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
WO 200055165	A1	20000921	WO 2000EP2351	A	20000316	200058 B
DE 19911504	A1	20001019	DE 1011504	A	19990316	200060
AU 200043953	A	20001004	AU 200043953	A	20000316	200101
EP 1165580	A1	20020102	EP 2000925117	A	20000316	200209
			WO 2000EP2351	A	20000316	
AU 747812	B	20020523	AU 200043953	A	20000316	200245

Priority Applications (No Type Date): DE 1011504 A 19990316

Patent Details:

Patent No Kind Lan Pg Main IPC Filing Notes

WO 200055165 A1 G 45 C07H-015/00

Designated States (National): AU CA IL US

Designated States (Regional): AT BE CH CY DE DK ES FI FR GB GR IE IT LU

MC NL PT SE

DE 19911504 A1 C07B-033/00

AU 200043953 A C07H-015/00 Based on patent WO 200055165

EP 1165580 A1 G C07H-015/00 Based on patent WO 200055165

Designated States (Regional): AT BE CH CY DE DK ES FI FR GB GR IE IT LI

LU MC NL PT SE

AU 747812 B C07H-015/00 Previous Publ. patent AU 200043953  
Based on patent WO 200055165

Abstract (Basic): WO 200055165 A1

NOVELTY - Industrial conversion of carbohydrates, alcohols, aldehydes or polyhydroxy compounds in the aqueous phase is effected using a metal catalyst formed from polymer-stabilized nanoparticles.

USE - No uses are given for the products of the wide range of oxidation, hydrogenation or reductive aminations that can be effected, except for the 2-keto-L-gulonic acid obtained by oxidation of sorbose which serves as an intermediate for the production of ascorbic acid (Vitamin C).

ADVANTAGE - The catalyst deactivation associated with prior-art industrial processes is avoided as long as the stabilizing interaction between the polymer and the nanoparticles is maintained; this is achieved despite the use of a variety of different combinations of supports, polymers and metals. There is no need to use a promoter with noble metal catalysts and, further, the catalysts are effective in terms of high reaction rate and high selectivity even with conversions of large molecules such as di- or oligo-saccharides.

pp; 45 DwgNo 0/7

Derwent Class: D17; E13; E17

International Patent Class (Main): C07B-033/00; C07H-015/00  
 International Patent Class (Additional): B01J-031/06; C07B-041/00;  
 C07C-051/23; C07C-059/10; C07C-059/185; C07C-059/245; C07D-307/62;  
 C07H-001/00

?ds

Set	Items	Description
S1	58237	(GLUCOSE? OR FRUCTOSE? OR SORBOSE? OR SUCROSE? OR ISOMALTULOSE? OR XYLOSE? OR MALTOSE? OR LACTOSE? OR SUGAR? OR CARBOHYDRATE?) AND (CONVERSION OR BIOCONVER?)
S2	31137	((PLATIMUN OR PALLADIUM OR RHODIUM OR RUTHENIUM OR PT OR PD OR RH OR RU) AND (COPPER? OR NICKEL OR CU OR NI)) AND CATALYST?
S3	250	S1 AND S2
S4	38	RD (unique items)
S5	1	S4 AND POLYMER?(S)NANOPARTICLE?
S6	1	S4 AND NANOPARTICLE?
S7	0	S6 NOT S5
S8	27	S4 AND (OXIDAT? OR HYDROGENAT? OR AMINAT?)
S9	26	S8 NOT S5

?t9/7/1-26

9/7/1 (Item 1 from file: 34)  
 DIALOG(R)File 34:SciSearch(R) Cited Ref Sci  
 (c) 2002 Inst for Sci Info. All rts. reserv.

06317151 Genuine Article#: YJ029 Number of References: 129  
 Title: Metallocenes, strong electron donors. A mechanistic review  
 Author(s): Asperger S (REPRINT)  
 Corporate Source: CROATIAN ACAD SCI & ARTS, RES CTR, A KOVACICA 5/ZAGREB 10000//CROATIA/ (REPRINT)  
 Journal: CROATICA CHEMICA ACTA, 1997, V70, N4 (NOV), P883-904  
 ISSN: 0011-1643 Publication date: 19971100  
 Publisher: CROATIAN CHEMICAL SOC, MARULICEV TRG 19/II, 41001 ZAGREB, CROATIA

Language: English Document Type: REVIEW

Abstract: The great stability of alpha-metallocenyl carbocations is well known. There is general agreement that the electrons from the region between the two cyclopentadienyl rings are most effective in accounting for this stability. Electron transport may involve conjugation with the pi-system of the pentadienyl rings or direct participation of metal electrons. The study of the secondary alpha-deuterium kinetic isotope effect (alpha-D KIE) can help, under certain circumstances, in solving the problem.

We have recently determined the alpha-D KIEs in acetolysis and formolysis of dideuterioferrocenylmethyl benzoate and found that, in the presence of LiClO<sub>4</sub>, (which prevents reversion from the solvent-separated to contact ion-pairs), the ratios  $k(H)/k(D)$  at 25 degrees C are 1.53 +/- 0.02 (acetolysis) and 1.48 +/- 0.03 (formolysis). The solvolyses exhibited a special salt effect, indicating the presence of solvent-separated ion-pairs and the return to contact ion-pairs. The high values of the KIE strongly suggest that both solvolyses are limiting dissociation processes with a carbenium ion-like transition state, which is stabilized mainly by conjugation with the pi-system of the pentadienyl rings.

For both solvolyses, the ratios of Arrhenius pre-exponential factors  $A(H)/A(D)$  are significantly less than unity; whether tunnelling plays a role in causing this effect is discussed.

Consistent with a dissociative (S<sub>N</sub>1) mechanism, in similar solvolyses a general tendency has been observed for faster reactions in solvents of higher ionizing power. However, we observed even a somewhat lower solvolysis rate in formic acid than in acetic acid, though the ionizing power of formic acid is much higher than that of acetic acid. This phenomenon is, at least partially, explained by the reaction being of the protonated ester, or protonated contact ion pair, so that the neutral leaving group becomes virtually insensitive to changes in solvent ionizing power. In addition, there is evidence that has been recently published, that the cationic charge of the ferrocenylmethylcarbenium ion is effectively spread through the ferrocenyl moiety.

Partial oxidation of iron(II) in certain solvents is also possible. The mentioned charge dispersion is in agreement with recent computations based on the density functional theory.

The antitumour activity of metallocenes is described. This activity is being seen as due to strong electron donation of these complexes. The ferrocenes activity as chiral nucleophile catalysts is described, which can mediate kinetic resolutions of chiral secondary alcohols, yielding large enantiomeric excess. This activity is also related to the ferrocene electron donation ability, enabling temporary binding of the chiral catalyst. A short survey of the use of ferrocenes for molecular recognition is given, as well as a short survey on metal-metal interactions in linked metallocenes. Activity of metallocene derivatives as catalysts for polymers is also briefly described.

9/7/2 (Item 2 from file: 34)  
DIALOG(R) File 34:SciSearch(R) Cited Ref Sci  
(c) 2002 Inst for Sci Info. All rts. reserv.

05630989 Genuine Article#: WL929 Number of References: 41  
Title: Molybdenum-catalyzed allylic substitution. Influence of 1,10-phenanthroline ligands on reactivity and selectivity  
Author(s): Sjogren MPT; Frisell H; Akermarck B (REPRINT); Norrby PO; Eriksson L; Vitagliano A  
Corporate Source: ROYAL INST TECHNOL, DEPT ORGAN CHEM/S-10044 STOCKHOLM//SWEDEN/ (REPRINT); ROYAL INST TECHNOL, DEPT ORGAN CHEM/S-10044 STOCKHOLM//SWEDEN/; ROYAL DANISH SCH PHARM, DEPT MED CHEM/DK-2100 COPENHAGEN//DENMARK/; UNIV STOCKHOLM, DEPT STRUCT CHEM/S-10691 STOCKHOLM//SWEDEN/; UNIV NAPLES FEDERICO II, DIPARTIMENTO CHIM/I-80134 NAPLES//ITALY/  
Journal: ORGANOMETALLICS, 1997, V16, N5 (MAR 4), P942-950  
ISSN: 0276-7333 Publication date: 19970304  
Publisher: AMER CHEMICAL SOC, 1155 16TH ST, NW, WASHINGTON, DC 20036  
Language: English Document Type: ARTICLE  
Abstract: Some new allylmolybdenum complexes containing 1,10-phenanthroline or 2,9-dimethyl-1,10-phenanthroline as Ligand have been synthesized and shown to have different geometries by NMR and X-ray diffraction analysis. The geometries of the complexes were elucidated by NMR techniques and confirmed by X-ray diffraction analysis. The catalytic activity and the influence on regio- and stereocontrol in the alkylation of allylic acetates have been investigated. The 2,9-dimethyl-1,10-phenanthroline complex was found to be a very efficient catalyst for selective conversion of (Z)-allyl acetates into (Z)-products.

9/7/3 (Item 3 from file: 34)  
 DIALOG(R)File 34:SciSearch(R) Cited Ref Sci  
 (c) 2002 Inst for Sci Info. All rts. reserv.

05163256 Genuine Article#: VE431 Number of References: 60  
 Title: CATALYTIC STEAM REFORMING OF BIOMASS-DERIVED OXYGENATES -  
 ACETIC-ACID AND HYDROXYACETALDEHYDE  
 Author(s): WANG D; MONTANE D; CHORNET E  
 Corporate Source: NATL RENEWABLE ENERGY LAB,1617 COLE BLVD/GOLDEN//CO/80401  
 ; UNIV SHERBROOKE/SHERBROOKE/PQ J1K 2R1/CANADA/  
 Journal: APPLIED CATALYSIS A-GENERAL, 1996, V143, N2 (AUG 28), P245-270  
 ISSN: 0926-860X

Language: ENGLISH Document Type: ARTICLE

Abstract: Biomass can be pyrolytically converted in high yields (similar to 70 wt.%) into vapors (or oils when condensed) composed mainly of oxygenated organic compounds. Using a fixed-bed microreactor interfaced with a molecular beam mass spectrometer (MBMS), we have been studying the catalytic steam reforming of model oxygen-containing compounds present in biomass pyrolysis vapors. This MBMS sampling system is unique in its rapid, real-time, and universal detection of gaseous and condensable products. In this paper, we present results for steam reforming of acetic acid (HAC) and hydroxyacetaldehyde (HAA), two major products derived from the pyrolysis of carbohydrates in biomass. We propose mechanisms to couple the thermal decomposition and steam reforming reactions of these compounds.

Both HAC and HAA undergo rapid thermal decomposition; complete steam reforming of these two model compounds can be achieved with commercial Ni-based catalysts. HAC forms coke on the catalyst surface, which is subsequently gasified by steam. The proposed mechanism for this coke formation involves an adsorbed acetate species that decarboxylates to form the coke precursor, (CH1-3)(abs), and also ketene, a dehydration product of HAC, that decomposes to form (CH1,2)(abs). The reforming of HAA by steam does not involve any detectable intermediate and proceeds smoothly to a complete breakdown to CO and H-2 on the catalyst surface.

9/7/4 (Item 4 from file: 34)  
 DIALOG(R)File 34:SciSearch(R) Cited Ref Sci  
 (c) 2002 Inst for Sci Info. All rts. reserv.

04938665 Genuine Article#: UT801 Number of References: 86  
 Title: ELECTRODE-KINETICS AND SPECIES TRANSPORT IN DIRECT OXIDATION  
 METHANOL FUEL-CELLS - PREFACE  
 Author(s): KAURANEN PS  
 Corporate Source: HELSINKI UNIV TECHNOL,DEPT TECH PHYS,RAKENTAJANAUKIO 2  
 C/FIN-02150 ESPOO//FINLAND/  
 Journal: ACTA POLYTECHNICA SCANDINAVICA-CHEMICAL TECHNOLOGY SERIES, 1996,  
 N237, P1-55  
 ISSN: 0781-2698

Language: ENGLISH Document Type: ARTICLE

Abstract: Polarisation losses due to limited reaction rates at both electrodes as well as fuel crossover to the cathode are the principal loss mechanisms in a state-of-the-art direct oxidation methanol fuel cell (DMFC) consisting of a Pt - Ru alloy anode, Pt cathode, proton conducting membrane electrolyte and liquid fuel supply. The objective of this study has been accurate quantification and discussion of the relative importance of these loss mechanisms. The electrode reactions and species transport phenomena have been studied both experimentally and by numerical calculations.

In the experimental part of the work, the kinetics of the electrode reactions has been studied on PTFE bonded electrodes in a half cell set-up in sulphuric acid. Galvanostatic polarisation data on carbon supported Pt and Pt - Ru catalyst materials has been analysed using the theory of adsorption on heterogeneous surfaces. In contrast to earlier kinetic models for methanol oxidation, the steady-state model presented is valid over a wide range of surface coverages by the reaction intermediates. The model has been extended to study simultaneous methanol oxidation and oxygen reduction processes in conditions which may be present in the DMFC cathode. The extended model shows that the two processes are running in parallel on Pt surface which is causing chemical oxidation of methanol.

In the theoretical part of the work, a FORTRAN 77 simulation programme has been written to study the loss mechanisms in a DMFC single cell. The simulation results show that the conversion losses due to the fuel crossover are as important a loss mechanism as the polarisation losses. As the conversion losses decrease and polarisation losses increase as functions of the current density, the overall efficiency comprising the two effects is maximised at intermediate current densities. The crossover accounts typically for an equivalent current density of 50 - 200 mA/cm<sup>2</sup> and the overall efficiency is 15 - 25 %.

Further improvements in methanol oxidation catalysis and methanol tolerant oxygen reduction catalysts or methanol impermeable electrolyte membranes are still needed before efficient high power density direct oxidation methanol fuel cells are to be realised.

9/7/5 (Item 5 from file: 34)  
 DIALOG(R) File 34:SciSearch(R) Cited Ref Sci  
 (c) 2002 Inst for Sci Info. All rts. reserv.

01360200 Genuine Article#: GT259 Number of References: 17  
 Title: AQUEOUS POLYOL CONVERSIONS ON RUTHENIUM AND ON SULFUR-MODIFIED RUTHENIUM  
 Author(s): MONTASSIER C; MENEZO JC; HOANG LC; RENAUD C; BARBIER J  
 Corporate Source: CNRS,URA 350,CHIM LAB 4,40 AVE RECTEUR PINEAU/F-86022 POITIERS//FRANCE/  
 Journal: JOURNAL OF MOLECULAR CATALYSIS, 1991, V70, N1, P99-110  
 Language: ENGLISH Document Type: ARTICLE  
 Abstract: The rates of xylose hydrogenation (373 K, 4 MPa of hydrogen) and of glycerol hydrogenolysis (483 K, 6 MPa of hydrogen) are higher on large ruthenium particles (deposited on charcoal) than on small ones. This can be explained by the higher oxidizability of the small particles. For glycerol hydrogenolysis, the selectivities of C-O and C-C bond cleavages do not depend on the size of the metal particles. Sulfur modification of ruthenium between 0 and 1 sulfur atom per accessible ruthenium atom leads to deactivation of both hydrogenation and hydrogenolysis reactions. For a surface atomic ratio S/ Ru (s) = 1, the catalyst selectivity and activity are similar to those of Raney copper. The formation of glycerol, erythritol, xylitol and glucitol conversion products can be explained by mechanisms much like those proposed for copper, namely hydro-dehydrogenation with irreversible adsorption of unsaturated species, dehydroxylation, retro-aldolization and retro-Michael reactions under the action of adsorbed hydroxyl groups. An electron transfer between ruthenium and sulfur is proposed to explain the presence of such hydroxyl groups at the surface of sulfurized ruthenium.

9/7/6 (Item 6 from file: 34)  
 DIALOG(R)File 34:SciSearch(R) Cited Ref Sci  
 (c) 2002 Inst for Sci Info. All rts. reserv.

01133062 Genuine Article#: FZ318 Number of References: 225  
 Title: ARTIFICIAL PHOTOSYNTHETIC MODEL SYSTEMS USING LIGHT-INDUCED  
 ELECTRON-TRANSFER REACTIONS IN CATALYTIC AND BIOCATALYTIC ASSEMBLIES  
 Author(s): WILLNER I; WILLNER B  
 Corporate Source: HEBREW UNIV JERUSALEM, DEPT ORGAN CHEM/IL-91904  
 JERUSALEM//ISRAEL/  
 Journal: TOPICS IN CURRENT CHEMISTRY, 1991, V159, P153-218  
 Language: ENGLISH Document Type: REVIEW

9/7/7 (Item 7 from file: 34)  
 DIALOG(R)File 34:SciSearch(R) Cited Ref Sci  
 (c) 2002 Inst for Sci Info. All rts. reserv.

00891332 Genuine Article#: FD895 Number of References: 1708  
 Title: NEW CHEMICAL AND STEREOCHEMICAL APPLICATIONS OF ORGANOIRON COMPLEXES  
 Author(s): FATIADI AJ  
 Corporate Source: NATL INST STAND & TECHNOL, CTR ANALYT CHEM, DIV ORGAN  
 ANALYT RES, BIOTECHN GRP/GAITHERSBURG//MD/20899  
 Journal: JOURNAL OF RESEARCH OF THE NATIONAL INSTITUTE OF STANDARDS AND  
 TECHNOLOGY, 1991, V96, N1, P1-113  
 Language: ENGLISH Document Type: REVIEW  
 Abstract: The objective of this review is to provide a current overview of  
 the rapidly developing chemistry of organometallic complexes and  
 particularly organoiron complexes useful in asymmetric and  
 stereoselective reactions. Also covered are stereoselective reactions  
 of alpha, beta-unsaturated acyl ligands bound to the chiral auxiliary  
 [(eta-5-C5H5) Fe(CO)(PPh3)] and new applications of organoiron  
 complexes in the synthesis of natural products. The mechanistic  
 aspects and stabilizing effects of the Fe(CO)3 group for alkenes or  
 conjugated dienes are discussed. A brief summary of recent work on the  
 special role of iron in biological reactions is also included.

9/7/8 (Item 8 from file: 34)  
 DIALOG(R)File 34:SciSearch(R) Cited Ref Sci  
 (c) 2002 Inst for Sci Info. All rts. reserv.

00718920 Genuine Article#: EP910 Number of References: 1165  
 Title: ORGANIC-SYNTHESIS - WHERE NOW  
 Author(s): SEEBACH D  
 Corporate Source: SWISS FED INST TECHNOL, ORGAN CHEM LAB, UNIV STR 16/CH-8092  
 ZURICH//SWITZERLAND/  
 Journal: ANGEWANDTE CHEMIE-INTERNATIONAL EDITION IN ENGLISH, 1990, V29, N11  
 , P1320-1367  
 Language: ENGLISH Document Type: REVIEW  
 Abstract: This review article is an attempt to sketch the important  
 developments in organic synthesis during the past 25 years, and to  
 project them into the future. The primary motivations that once  
 induced chemists to undertake natural product syntheses no longer  
 exist. Instead of target structures themselves, molecular function and  
 activity now occupy center stage. Thus, inhibitors with an affinity  
 for all the important natural enzymes and receptors have moved to the  
 fore as potential synthetic targets. New synthetic methods are most  
 likely to be encountered in the fields of biological and organometallic  
 chemistry. Enzymes, whole organisms, and cell cultures for



enantioselective synthesis of specific substances have already been incorporated into the synthetic arsenals of both research laboratories and industry. In addition, designing appropriate analogues to transition states and intermediates should soon make it possible, with the aid of the mammalian immune system and gene technology, to prepare catalytically active monoclonal antibodies for almost any reaction; perhaps more important, such processes will increasingly come to be applied on an industrial scale. The discovery of truly new reactions is likely to be limited to the realm of transition-metal organic chemistry, which will almost certainly provide us with additional "miracle reagents" in the years to come. As regards main group elements ("organoelemental chemistry"), we can surely anticipate further stepwise improvements in experimental procedures and the broader application of special techniques, leading to undreamed of efficiency and selectivity with respect to known procedures. The primary center of attention for all synthetic methods will continue to shift toward catalytic and enantioselective variants; indeed, it will not be long before such modifications will be available with every standard reaction for converting achiral educts into chiral products. Analysis, spectroscopy, structure determination, theory, and electronic data processing have all become indispensable in organic synthesis.

Only with the aid of these "tools" will the methods of organic chemistry permit selective syntheses of ever larger and more complex systems on both the molecular and supramolecular levels. Examples have been introduced throughout this discourse to illustrate its many themes, and a very comprehensive bibliography should help the interested reader become more familiar with important keywords and authors.[\*\*] This article will have served its intended purpose if it changes the minds of some who claim organic chemistry is a mature science, and if it causes students to discover the vitality and forcefulness with which organic synthesis is meeting new challenges and attempting to fulfill old dreams. []

9/7/9 (Item 1 from file: 50)  
DIALOG(R) File 50:CAB Abstracts  
(c) 2002 CAB International. All rts. reserv.

02548968 CAB Accession Number: 920313267

Single-step catalytic process for the direct conversion of polysaccharides to polyhydric alcohols.

Jacobs, P.; Hinnekens, H.

Fina Research SA

Belgium.

United States Patent

(US 4950812): 6 pp.

Publication Year: 1990

A 22.02.89-US-313946, P 21.08.90. Also: EP 329923, A  
22.02.88-EP-88/870023; DK 89/784; JP-A 01/268653 --

Language: English

Document Type: Patent

Oligo- or polysaccharides are converted to polyhydric alcohols by catalytic hydrogenation at high pressure (>1 MPa) and temperature 348-523K preferably 373-443K for disaccharides or 428-483K for polysaccharides. The catalyst consists of (i) a metal (Ru, Cu, Ni, Co or mixtures of these) finely dispersed on a support and capable of adsorbing >0.58 molecules of CO per metal atom, and (ii) a solid (which may be the support) having sufficient acidic functions to hydrolyse sucrose at >70% of the rate at which the catalyst hydrogenates glucose. Particularly suitable as the support is a synthetic acidic

zeolite having intermediate pore sizes and a 3-dimensional network of channels, e.g. acid ultrastable zeolite Y. The initial saccharide concentration is 10-80 (25-60, typically 30)% and the metal concentration is 0.04-8.0% w/w saccharide, preferably 0.08-0.3% on polysaccharide or 0.04-0.12% on disaccharide. Examples are given of conversions: starch to alditols (mainly sorbitol, with some xylitol and mannitol); sucrose to sorbitol + mannitol, typically 72:28; lactose to sorbitol + xylitol (1:1).

9/7/10 (Item 1 from file: 94)  
 DIALOG(R)File 94:JICST-EPlus  
 (c)2002 Japan Science and Tech Corp(JST). All rts. reserv.

03644785 JICST ACCESSION NUMBER: 98A0654449 FILE SEGMENT: JICST-E  
 A New Active Catalyst for Single Step Synthesis of Methyl Isobutyl Ketone  
 from Acetone.

COH B-Y (1); HUR J M (1); LEE H-I (1)  
 (1) Seoul National Univ., Seoul, KOR  
 Chem Lett, 1998, NO.7, PAGE.583-584, FIG.2, TBL.1, REF.9 QD1.245  
 JOURNAL NUMBER: S0742AAV ISSN NO: 0366-7022 CODEN: CMLTA  
 UNIVERSAL DECIMAL CLASSIFICATION: 544.478-03+ 547.284+547.384  
 LANGUAGE: English COUNTRY OF PUBLICATION: Japan  
 DOCUMENT TYPE: Journal

ARTICLE TYPE: Short Communication  
 MEDIA TYPE: Printed Publication  
 ABSTRACT: 2 wt% Ni -CaO catalyst prepared by sol-gel process showed  
 70-80% acetone conversion and 60% MIBK selectivity at 200 .DEG.C. of  
 reaction temperature. The incorporated Ni influenced CaCO<sub>3</sub>, catalyst  
 intermediate, to readily decompose into CaO, active basic component,  
 and CO<sub>2</sub> at even 50 .DEG.C.. Meanwhile, Co or Pd did not influence  
 CaCO<sub>3</sub> decomposition at the same temperature of 500 .DEG.C. and showed  
 no catalytic activity. That is, Ni played a role as promoter for  
 catalyst activation as well as active site of hydrogenation. (author  
 abst.)

9/7/11 (Item 2 from file: 94)  
 DIALOG(R)File 94:JICST-EPlus  
 (c)2002 Japan Science and Tech Corp(JST). All rts. reserv.

03552255 JICST ACCESSION NUMBER: 98A0179346 FILE SEGMENT: JICST-E  
 New development on functions of coordination compounds using light.  
 Development of metal complexes with photocatalytic action. (Ministry of Education, Science and Culture S ).

ISHIDA HITOSHI (1)  
 (1) Kumamoto Univ., Fac. of Eng.  
 Hikari o Mochiita Haii Kagobutsu no Kino ni kansuru Shintenkai. Heisei 7-8  
 Nendo. No.07304076, 1997, PAGE.162-163, FIG.3  
 JOURNAL NUMBER: N19980161M  
 UNIVERSAL DECIMAL CLASSIFICATION: 546.3-386TRANSITION 544.52  
 LANGUAGE: Japanese COUNTRY OF PUBLICATION: Japan  
 DOCUMENT TYPE: Journal  
 ARTICLE TYPE: Short Communication  
 MEDIA TYPE: Printed Publication

9/7/12 (Item 3 from file: 94)  
 DIALOG(R)File 94:JICST-EPlus  
 (c)2002 Japan Science and Tech Corp(JST). All rts. reserv.

01494273 JICST ACCESSION NUMBER: 92A0098298 FILE SEGMENT: JICST-E  
Development of the application-oriented technology of solar systems for  
industrial use and so on. Research into the technology of chemical  
energy conversion .

ONO TAKAHIKO (1)

(1) Shin'enerugisangyogijutsusogokaihatsukiko  
Sanshain Keikaku Kenkyu Kaihatsu no Gaikyo. Taiyo Enerugi 1. Hikari Riyo  
Gijutsu 2. Netsu Riyo Gijutsu, 1991, VOL.1990, PAGE.II.55-II.63, FIG.5,  
TBL.1

JOURNAL NUMBER: X0275BAI

UNIVERSAL DECIMAL CLASSIFICATION: 66.045.1 662.997.002.5

LANGUAGE: Japanese COUNTRY OF PUBLICATION: Japan

DOCUMENT TYPE: Journal

ARTICLE TYPE: Short Communication

MEDIA TYPE: Printed Publication

9/7/13 (Item 4 from file: 94)

DIALOG(R)File 94:JICST-EPlus

(c)2002 Japan Science and Tech Corp(JST). All rts. reserv.

00826844 JICST ACCESSION NUMBER: 89A0080388 FILE SEGMENT: JICST-E  
Oxidative cleavage of 4,6-O-benzylidene ring with t-butyl hydroperoxide  
and copper (II) chloride. Preparation of methyl 4-O- and  
6-O-benzoylhexopyranoside derivatives.

SATO K (1); IGARASHI T (1); YANAGISAWA Y (1); KAWAUCHI N (2); HASHIMOTO H  
(2); YOSHIMURA J (2)

(1) Kanagawa Univ., Yokohama, JPN; (2) Tokyo Inst. Technology, Yokohama,  
JPN

Chem Lett, 1988, NO.10, PAGE.1699-1702, TBL.2, REF.5

JOURNAL NUMBER: S0742AAV ISSN NO: 0366-7022 CODEN: CMLTA

UNIVERSAL DECIMAL CLASSIFICATION: 547.918

LANGUAGE: English COUNTRY OF PUBLICATION: Japan

DOCUMENT TYPE: Journal

ARTICLE TYPE: Short Communication

MEDIA TYPE: Printed Publication

ABSTRACT: Copper (II) chloride and palladium (II) acetate were found to  
be highly effective catalysts for oxidative cleavage of  
O-benzylidene ring with t-butyl hydroperoxide. Using the former  
catalyst 4,6-O-benzylidenehexopyranoside derivatives were converted  
into the corresponding 4- and 6-benzoates in high yields. This reaction  
was also applicable for conversion of benzyl group into benzoyl  
one.(author abst.)

9/7/14 (Item 1 from file: 144)

DIALOG(R)File 144:Pascal

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12629849 PASCAL No.: 96-0322991

Hydrogenation du glucose en reacteur triphasique continu sur  
catalyseurs au nickel et au ruthenium

( Hydrogenation of glucose in a continuous triphasic reactor on  
nickel and ruthenium catalysts )

DECHAMP NICOLAUS Nathalie; GALLEZOT P, dir

Universite de Lyon 1, Villeurbanne, Francee

Univ.: Universite de Lyon 1. Villeurbanne. FRA Degree: Th. doct.

1996-01; 1996 245 p.

Availability: INIST-T 104571; T96LYO10005 0000

No. of Refs.: 74 ref.

Document Type: T (Thesis) ; M (Monographic)

Country of Publication: France

Language: French Summary Language: French; English

La production de sorbitol pur a 99,0% par hydrogenation de solutions aqueuses tres concentrees en glucose a ete mise au point en reacteur triphasique continu fonctionnant a co-courant descendant sur des catalyseurs au nickel et au ruthenium supportes, disposes en lit fixe. A 130 Degree C et 80 bars d'hydrogene, l'hydrogenation quasi totale du glucose en sorbitol (selectivite 98%) a pu etre obtenue au temps de contact 0,2 gNi.h/ml, sur un catalyseur au nickel supporte Engelhard (50% Ni /SiO SUB 2 -Al SUB 2 O SUB 3 ). Une etude cinetique complete a ete realisee sur ce catalyseur et les donnees cinetiques ont ete interpretees par le modele de Langmuir-Hinshelwood. Mais la dissolution du support et du metal justifie le remplacement des catalyseurs au nickel par des catalyseurs au ruthenium sur un support inerte comme le charbon actif. Dans des conditions plus douces (100 Degree C, 80 bars), les catalyseurs I-2% Ru /C presentent des activites specifiques initiales cent fois superieures a celles des catalyseurs au nickel . En se placant dans un domaine de temps de contact compris entre 60 et 80.10 SUP - SUP 4 gRu.h/ml, la reaction est totale avec une selectivite en sorbitol superieure a 99,0%. Aux temps de contact plus eleves, la selectivite en sorbitol diminue. Ces catalyseurs au ruthenium sont stables sur un mois de fonctionnement. Le dopage de ces catalyseurs monometalliques par de faibles quantites de platine (0,2% en poids), permet d'elargir a 60-120.10 SUP - SUP 4 gRu.h/ml le domaine des temps de contact favorables a cette haute selectivite en sorbitol a conversion complete du glucose

9/7/15 (Item 2 from file: 144)

DIALOG(R) File 144:Pascal

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09454125 PASCAL No.: 91-0244501

Conversion selective des polyols sur catalyseurs au ruthenium modifie  
(Selective conversion of polyols on modified ruthenium catalysts )

HOANG Le Chien; BARBIER Jacques, dir the

Univ.: Poitiers Degree: Th. doct. : Chim. phys.

1990; 1990 192 p.

Availability: INIST-T 71212

No. of Refs.: 185 ref.

Document Type: T (Thesis) ; M (Monographic)

Country of Publication: France

Language: French

La transformation des polyols a ete etudiee en phase aqueuse, sur catalyseurs a base de ruthenium , seul ou modifie par des ajouts: Cu , Sn, Pb et le soufre. Le ruthenium est depose, a partir de RuCl SUB 3 ou de Ru (NH SUB 3 ) SUB 6 Cl SUB 3 , par impregnation simple ou echange cationique, sur deux supports: une silice de 250 m SUP 2 /g et un charbon actif de 850 m SUP 2 /g. Les catalyseurs obtenus ont ete caracterises par chimisorption et titrage H SUB 2 -O SUB 2 en isotherme ou en temperature programmee. Les catalyseurs Ru /Charbon, stables en milieu aqueux dans les conditions d'etude de la transformation des polyols, ont ete modifies par des ajouts metalliques: Cu , Pb, Sn deposes par la technique de reduction catalytique ou par du soufre depose par impregnation. Ces ajouts sont en interaction avec le metal bien qu'ils ne modifient pas l'accessibilite du metal a l'hydrogene ou a l'oxygene. Cu , Pb, Sn et S desactivent beaucoup plus l'hydrogenolyse du glycerol (210 Degree C) que l'hydrogenation du xylose (100 Degree C). Pour un taux de recouvrement egal a 1 en Cu , Pb ou Sn les polyols sont transformes par hydrogenolyses competitives des liaisons C-C et C-O. Dans le cas du Cu depose sur le Ru , on ne retrouve pas les proprietes des catalyseurs a base de Cu sur lesquels on a depose du Ru qui, eux ne sont pas hydrogenolysants. Le depot de S sur le

ruthenium donne un catalyseur faiblement actif mais dont la selectivite se rapproche de cel

9/7/16 (Item 1 from file: 315)  
DIALOG(R)File 315:ChemEng & Biotec Abs  
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430380 CEABA Accession No.: 29-02-002343 DOCUMENT TYPE: Journal  
Title: Amination of diols and polyols to acyclic amines.  
AUTHOR: Baiker, A. ; Fischer, A. ; Mallat, T.  
CORPORATE SOURCE: Swiss Federal Inst. Technol. Dept. Chem. Eng. Ind. Chem.  
CH-8092 Zurich Switzerland  
JOURNAL: Catal. Today, Volume: 37, Issue: 2, Page(s): 167-189  
CODEN: CATTEA ISSN: 09205861  
PUBLICATION DATE: 1 Aug 1997 (970801) LANGUAGE: English  
ABSTRACT: A review, with 131 references, of the heterogeneous catalytic transformations of bi- and polyfunctional alcohols to the corresponding linear and branched (but not cyclic) amines. The aminating components are mainly ammonia but also primary and secondary amines. The typical catalysts can be divided into two main groups: supported metal and multimetallic hydrogenation catalysts and solid acids. The reaction routes and mechanisms and reaction conditions are discussed according to the different types of catalyst. Numerous examples illustrating the amination of: simple aliphatic diols, amino alcohols, polyoxyalkylene diols and triols, and polyhydroxy-carbonyl compounds (sugars) are given.

9/7/17 (Item 1 from file: 351)  
DIALOG(R)File 351:Derwent WPI  
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014699249  
WPI Acc No: 2002-519953/200255  
Alcohol (especially sugar alcohol) production by hydrogenation of carbonyl compound is catalyzed by a Raney catalyst of hollow form, especially hollow spheres

Patent Assignee: DEGUSSA AG (DEGS )  
Inventor: BERWEILER M; OSTGARD D; ROEDER S  
Number of Countries: 099 Number of Patents: 002  
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
WO 200251779	A2	20020704	WO 2001EP15264	A	20011221	200255 B
DE 10065029	A1	20020704	DE 1065029	A	20001223	200255

Priority Applications (No Type Date): WO 2001EP12567 A 20011031; DE 1065029  
A 20001223

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
WO 200251779	A2	G	52	C07C-029/141	

Designated States (National): AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA  
CH CN CO CR CU CZ DE DK DM DZ EC EE ES FI GB GD GE GH GM HR HU ID IL IN  
IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ  
OM PH PL PT RO RU SD SE SG SI SK SL TJ TM TN TR TT TZ UA UG UZ VN YU ZA  
ZM ZW

Designated States (Regional): AT BE CH CY DE DK EA ES FI FR GB GH GM GR  
IE IT KE LS LU MC MW MZ NL OA PT SD SE SL SZ TR TZ UG ZM ZW

DE 10065029 A1 C07C-029/136

Abstract (Basic): WO 200251779 A2

NOVELTY - Production of alcohols by hydrogenation of carbonyl compounds with H<sub>2</sub> (-containing) gas is catalyzed by a Raney catalyst with hollow form.

USE - The alcohols are useful as starting materials for the production of solvents, surfactants, perfumes, aromas, additives, pharmaceuticals and other organics. Especially preferred products are sugar alcohols which are useful as sweeteners.

ADVANTAGE - Difficulties associated with prior art methods are overcome and reduced amounts of catalyst can be used while still giving conversions and yields at least as high as those obtained in known methods.

pp; 52 DwgNo 0/0

Derwent Class: E19

International Patent Class (Main): C07C-029/136; C07C-029/141  
International Patent Class (Additional): C07B-041/02; C07C-029/149;  
C07C-031/02; C07C-031/10; C07C-031/125; C07C-031/20; C07C-031/26;  
C07C-033/20; C07C-051/567; C07D-307/32

9/7/18 (Item 2 from file: 351)  
DIALOG(R) File 351:Derwent WPI  
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014220453

WPI Acc No: 2002-041151/200205

New catalyst system, useful for stereoselective inversion of chiral center of chemical compound, comprises metal catalyst, oxidant, hydrogen source and enzymatic system for catalyzing oxidation of compound at chiral center

Patent Assignee: GREAT LAKES CHEM CORP (GREA); NSC TECHNOLOGIES LLC (NSCT-N); PCBU SERVICES INC (PCBU-N)

Inventor: AGER D J; LANEMAN S; LIU W; TAYLOR P P

Number of Countries: 094 Number of Patents: 004

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
WO 200162948	A2	20010830	WO 2001US5688	A	20010222	200205 B
AU 200147218	A	20010903	AU 200147218	A	20010222	200205
US 20010021519	A1	20010913	US 2000510882	A	20000223	200205
			US 2001766762	A	20010122	
US 6365380	B2	20020402	US 2000510882	A	20000223	200226
			US 2001766762	A	20010122	

Priority Applications (No Type Date): US 2000510882 A 20000223; US 2001766762 A 20010122

Patent Details:

Patent No Kind Lan Pg Main IPC Filing Notes

WO 200162948 A2 E 24 C12P-013/04

Designated States (National): AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CR CU CZ DE DK DM DZ EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT TZ UA UG UZ VN YU ZA ZW

Designated States (Regional): AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW MZ NL OA PT SD SE SL SZ TR TZ UG ZW

AU 200147218 A C12P-013/04 Based on patent WO 200162948  
US 20010021519 A1 C12P-013/22 Div ex application US 2000510882  
US 6365380 B2 C12P-013/04 Div ex application US 2000510882

Abstract (Basic): WO 200162948 A2

NOVELTY - A catalyst system (I) for stereoselectively inverting a chiral center (CC) of a chemical compound (C), comprising a catalytic amount of a metal catalyst, an oxidant, hydrogen source, and an

enzymatic system (II) or microorganism cells capable of producing (II), where (II) is capable of catalyzing the oxidation of (C) at CC, is new.

DETAILED DESCRIPTION - An INDEPENDENT CLAIM is also included for stereoselectively inverting a chiral center of a chemical compound comprising treating a chemical compound having a chiral center with (I).

USE - (I) is useful for stereoselectively inverting a chiral center of a chemical compound, e.g. L forms of amino acids Phe, Val, Trp, Met, Nor-Leu, Nor-Val, Ile, or their derivatives (claimed), and thus for the production of optically active amino acids.

ADVANTAGE - The catalytic hydrogenation system with metal catalyst and an inexpensive hydrogen is suitable for generating efficient reducing power, without harming the amino acid enzymes or more preferably, the microorganism cells which produce these enzymes. The amine intermediate generated from the amino acid oxidase catalyzed dehydrogenation is reduced back to the amino acid by catalytic hydrogenation instead of borohydride reduction. The system also allows industrial scale stereoscopic conversion of amino acids to their respective enantiomers on a practical and cost-effective basis.

pp; 24 DwgNo 0/0

Derwent Class: B04; D16; J04

International Patent Class (Main): C12P-013/04; C12P-013/22

International Patent Class (Additional): A01N-001/00; A01N-001/02;

C12N-009/10; C12P-013/06; C12P-013/08

9/7/19 (Item 3 from file: 351)

DIALOG(R) File 351:Derwent WPI

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013850339 \*\*Image available\*\*

WPI Acc No: 2001-334552/200135

Monolithic catalytic convertor for environmental control systems in aircraft cabin has aluminum (alloy) support with gas flow path and anodized surface layer of preset thickness, containing specific noble metals

Patent Assignee: ALLIED-SIGNAL INC (ALLC )

Inventor: HOMEYER S T; LESTER G R

Number of Countries: 001 Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
US 6203771	B1	20010320	US 92967591	A	19921028	200135 B
			US 94271922	A	19940707	

Priority Applications (No Type Date): US 94271922 A 19940707; US 92967591 A 19921028

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
US 6203771	B1	14	C01B-013/00	CIP of application	US 92967591

Abstract (Basic): US 6203771 B1

NOVELTY - The convertor has an aluminum (alloy) support having gas flow path and an integral anodized surface layer of thickness 2 mum or more. The support comprises plate fin elements with several fins. The layer is formed at 30-37 degreesC, washed and optionally calcined at 150-540 degreesC. It contains one or more VIII group noble metals, and optionally base metals from groups VIII, IIIa and VIIa.

DETAILED DESCRIPTION - The catalytic convertor has a unitary aluminum (alloy) support inside a housing. The support comprises one or more plate fin elements having several fins arranged in an axial

succession of offset fin rows (10).

INDEPENDENT CLAIMS are also included for;

(1) A method of destroying atmospheric pollutants by oxidation by passing air containing pollutants through the monolithic catalytic convertor; and

(2) The formation of an integral anodized catalytic surface layer on support. A direct current of 9 amps/ft<sup>2</sup> and 8-15 volts, is passed through the surface of an aluminum (alloy) provided in an electrolytic bath comprising 5-20 weight% of aqueous sulfuric acid maintained at a constant temperature of 30-37 degreesC. The obtained anodized surface is washed and optionally calcined. The surface is impregnated with solution of compounds containing one or more VIII group noble metals and optionally with base metals from groups Ib, IIb, IIIa-VIIa and VIII. The impregnated surface is heated to decompose the metal compounds.

USE - For environmental control systems in aircraft cabin.

ADVANTAGE - The size and weight of the catalytic convertor are reduced. The convertor is obtained economically.

DESCRIPTION OF DRAWING(S) - The figure shows the perspective view of a portion of the plate fin element.

Fin rows (10)

pp; 14 DwgNo 1/4

Derwent Class: E36; J04

International Patent Class (Main): C01B-013/00

International Patent Class (Additional): B01D-053/34; B01J-021/04

9/7/20 (Item 4 from file: 351)

DIALOG(R) File 351:Derwent WPI

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013773555

WPI Acc No: 2001-257766/200126

Catalyst comprising an active metal for use in hydrogenation reactions, comprises ruthenium on a titania support, where the catalyst is essentially without nickel or ruthenium

Patent Assignee: BATTELLE MEMORIAL INST (BATT )

Inventor: ELLIOTT D C; FRYE J G; WANG Y; WERPY T A; ELLIOT D C

Number of Countries: 095 Number of Patents: 004

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
WO 200117677	A1	20010315	WO 2000US23922	A	20000831	200126 B
US 6235797	B1	20010522	US 99389389	A	19990903	200130
AU 200069481	A	20010410	AU 200069481	A	20000831	200137
EP 1207956	A1	20020529	EP 2000957931	A	20000831	200243
			WO 2000US23922	A	20000831	

Priority Applications (No Type Date): US 99389389 A 19990903

Patent Details:

Patent No Kind Lan Pg Main IPC Filing Notes

WO 200117677 A1 E 19 B01J-023/46

Designated States (National): AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CR CU CZ DE DK DM DZ EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT TZ UA UG UZ VN YU ZA ZW

Designated States (Regional): AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW MZ NL OA PT SD SE SL SZ TZ UG ZW

US 6235797 B1 C07C-027/00

AU 200069481 A B01J-023/46 Based on patent WO 200117677

EP 1207956 A1 E B01J-023/46 Based on patent WO 200117677

Designated States (Regional): AL AT BE CH CY DE DK ES FI FR GB GR IE IT



LI LT LU LV MC MK NL PT RO SE SI

Abstract (Basic): WO 200117677 A1

NOVELTY - Providing an aqueous phase hydrogenation catalysts that maintain catalytic activity for extended periods of time under hydrogenation conditions, and which exhibit enhanced conversion efficiencies, high selectivities, and operabilities at low temperatures.

DETAILED DESCRIPTION - A catalyst comprising an active metal comprising ruthenium on a titania support, where the titania is more than 75% rutile as measured by X-ray diffraction and the catalyst is essentially without nickel or ruthenium.

INDEPENDENT CLAIMS are also included for:

- (1) a catalyst system as above except that the catalyst is essentially without nickel ; and
- (2) hydrogenating an organic compound in aqueous phase comprising contacting a feedstock with hydrogen in the presence of a catalyst comprising an active metal comprising ruthenium on a titania support, where the catalyst is essentially without nickel and the feedstock comprises at least one organic compound in water.

USE - Used for hydrogenation reactions.

ADVANTAGE - Exhibit enhanced conversion efficiencies, high selectivities, operability at low temperatures, and/or high processing rates.

pp; 19 DwgNo 0/0

Derwent Class: E19; H04; J04

International Patent Class (Main): B01J-023/46; C07C-027/00

International Patent Class (Additional): B01J-021/06; C07C-029/141

9/7/21 (Item 5 from file: 351)

DIALOG(R)File 351:Derwent WPI

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013607939

WPI Acc No: 2001-092147/200111

Preparation of mixture of glucosyl-mannitol and glucosyl-sorbitol comprises continuous hydrogenation of glucosyl-glucosone in fixed catalyst beds

Patent Assignee: ROQUETTE FRERES SA (ROQF )

Inventor: CABOCHE J; CABOCHE J J

Number of Countries: 027 Number of Patents: 004

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
CA 2308959	A1	20001117	CA 2308959	A	20000515	200111 B
EP 1054016	A1	20001122	EP 2000401316	A	20000515	200116
FR 2793797	A1	20001124	FR 996226	A	19990517	200116
US 6350864	B1	20020226	US 2000571655	A	20000515	200220

Priority Applications (No Type Date): FR 996226 A 19990517

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
CA 2308959	A1	F	20	C07H-015/04	
EP 1054016	A1	F	8	C07H-003/04	

Designated States (Regional): AL AT BE CH CY DE DK ES FI FR GB GR IE IT

LI LT LU LV MC MK NL PT RO SE SI

FR 2793797 A1 C07H-003/02

US 6350864 B1 C07G-003/00

Abstract (Basic): CA 2308959 A1

NOVELTY - The process is conducted in a trickle bed reactor with

two reaction zones. In the first zone, a high conversion to a mixture of glucosyl-mannose, glucosyl fructose and glucosyl- glucose is obtained, then in a second stage, a mixture of glucosyl-mannose and glucosyl-sorbitol, with a high content of glucosyl-mannitol.

DETAILED DESCRIPTION - The process involves the hydrogenation of glucosyl-glucosone in the presence of a catalyst, the glucosyl-glucosone solution having a dry material content of at least 10 (preferably 20-50) weight %, at a pressure of 30 bars (preferably 30-200 bars) and at 50 degreesC. min. (preferably 50-150 degreesC.)

An INDEPENDENT CLAIM is also included for the mixture of glucosyl-alpha-1,4-mannitol and glucosyl-alpha-1,4-sorbitol obtained, in a ratio of at least 1 and preferably 1.5.

USE - The mixed product is used as a sweetening agent.

ADVANTAGE - The process enables the preparation of a mixture of glucosyl-mannitol and glucosyl-sorbitol with a high content of glucosyl-mannitol, which has not hitherto been achieved in prior methods. A high conversion and productivity is attainable.

pp; 20 DwgNo 0/0

Derwent Class: D13; D17; E13

International Patent Class (Main): C07G-003/00; C07H-003/02; C07H-003/04; C07H-015/04

International Patent Class (Additional): B01J-023/06; B01J-023/26; B01J-023/30; B01J-023/34; B01J-023/42; B01J-023/44; B01J-023/46; B01J-023/72; B01J-023/75; B01J-023/755; C07G-011/00; C07G-017/00; C07H-001/00; C07H-015/00

9/7/22 (Item 6 from file: 351)

DIALOG(R) File 351:Derwent WPI

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013533776

WPI Acc No: 2001-017982/200103

Production of fructose comprises catalytic hydrogenation of a concentrated glucosone solution

Patent Assignee: ROQUETTE FRERES SA (ROQF )

Inventor: CHOQUE J; FLECHE G; CHOQUE J C

Number of Countries: 025 Number of Patents: 002

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
EP 1048672	A1	20001102	EP 2000401125	A	20000421	200103 B
FR 2792939	A1	20001103	FR 995309	A	19990427	200103

Priority Applications (No Type Date): FR 995309 A 19990427

Patent Details:

Patent No Kind Lan Pg Main IPC Filing Notes

EP 1048672 A1 F 6 C07H-003/02

Designated States (Regional): AL AT BE CH CY DE DK ES FI FR GB GR IE IT

LI LT LU LV MC MK NL PT RO SE SI

FR 2792939 A1 C07H-003/02

Abstract (Basic): EP 1048672 A1

NOVELTY - Production of fructose comprises catalytic hydrogenation of a glucosone solution with a solids content of at least 10 wt.% at a pressure of at least 20 bar and a temperature of at least 50 degreesC.

USE - For production of food-grade fructose .

ADVANTAGE - The process employs higher glucosone solids contents than prior art hydrogenation processes while still giving high conversions and selectivities (compare US4246347, US4423149 and WO8103666).

pp; 6 DwgNo 0/0  
 Derwent Class: D17; E13  
 International Patent Class (Main): C07H-003/02  
 International Patent Class (Additional): B01J-023/04; B01J-023/16;  
 B01J-023/42; B01J-023/44; B01J-023/46; B01J-023/72; B01J-023/75

9/7/23 (Item 7 from file: 351)  
 DIALOG(R)File 351:Derwent WPI  
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009564890

WPI Acc No: 1993-258438/199332

Metallic catalyst compsn. for hydrogenolysis of poly-hydric alcohol(s)  
 - comprising carbon@ support contg. ruthenium, palladium and copper  
 , useful for conversion of sorbitol to propylene glycol  
 Patent Assignee: MONTECATINI TECNOLOGIE SRL (MONT ); NOVAMONT SPA (NOVA-N)  
 ; MONTECATINI TECNOLOGIE SPA (MONT ); MONTECATINI TECNOLOGIE SRL (MONT  
 )

Inventor: CASALE B; GUBITOSA G

Number of Countries: 005 Number of Patents: 008

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
WO 9314867	A1	19930805	WO 93EP194	A	19930128	199332	B
AU 9334520	A	19930901	AU 9334520	A	19930128	199350	
US 5326912	A	19940705	US 9311189	A	19930129	199426	
TW 227528	A	19940801	TW 93100591	A	19930130	199435	
EP 625072	A1	19941123	EP 93914535	A	19930128	199445	
			WO 93EP194	A	19930128		
IT 1256801	B	19951215	IT 92T080	A	19920131	199628	
US 5543379	A	19960806	US 9311189	A	19930129	199637	
			US 94221810	A	19940401		
CN 1078173	A	19931110	CN 93102397	A	19930131	199709	

Priority Applications (No Type Date): IT 92T080 A 19920131

Cited Patents: EP 191373; FR 2223337; US 3901827; US 4430253

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
WO 9314867	A1	E	31	B01J-023/89	
AU 9334520	A			B01J-023/89	Based on patent WO 9314867
US 5326912	A		5	C07C-027/00	
EP 625072	A1	E		B01J-023/89	Based on patent WO 9314867
US 5543379	A		6	B01J-023/46	Div ex application US 9311189 Div ex patent US 5326912
TW 227528	A			B01J-023/46	
IT 1256801	B			B01J-000/00	
CN 1078173	A			B01J-023/74	

Abstract (Basic): WO 9314867 A

Metallic catalyst compsn. on inert support, comprises (a) 0.5-5 wt.% Ru ; (b) 1-10 wt.% Pd , Pt or Rh ; and (c) 0.5-2.5 wt.% Cu , providing the amt. of Cu is less than the amt. of the metal in b). The support is pref. granulated activated carbon, having specific surface area = 600-1000 m<sup>2</sup>/g; total pore vol. = 0.5-1.2 cm<sup>3</sup>/g; apparent specific wt. (bulk density) = 0.45-0.55 g/cm<sup>3</sup>; actual specific wt. = 1.9-2.3 g/cm<sup>3</sup>; total vol. of micropores having a radius smaller than 75 Angstroms = 0.4-0.55 cm<sup>3</sup>/g; ash content = 2-5 wt.%.

USE/ADVANTAGE - The catalyst is useful for prodn. of lower polyhydric alcohols from higher polyhydric alcohols (claimed) obtd. from renewable materials. The lower polyhydric alcohol prods. are e.g. ethanediol, 1,2-propylene diol, butanediol and glycerol; and the higher

polyhydric alcohols are, e.g. sorbitol, manitol and xylitol, obtd. by catalytic hydrogenation of carbohydrates, e.g. glucose, fructose and mixts.

Dwg.0/0

Abstract (Equivalent): US 5543379 A

A method for preparing a catalyst for hydrogenolysis reactions of higher polyhydric alcohols, the method comprising the steps of:

(a) preparing an aqueous solution comprising a compound of ruthenium and a second metal compound selected from the group consisting of palladium, platinum and rhodium compounds;

(b) contacting the aqueous solution with an aqueous suspension of an activated carbon, and regulating the pH by adding an alkaline agent until a value of between 4.5 and 8 is obtained; (c) heating to a temperature of 60deg. to 100deg. C. for a time sufficient to cause the formation of a solid comprising compounds of the metals deposited on the activated carbon;

(d) separating the solid;

(e) suspending the solid obtained from the separation in an alkaline solution and hydrogenating the suspension thus obtained with gaseous hydrogen at a temperature of between 60deg. and 100deg. C. for a time sufficient to give rise to an intermediate catalyst comprising the metals in their metallic state deposited on the activated carbon;

(f) adding to the suspension an aqueous solution comprising copper at a temperature lower than 50deg. C. and maintaining the suspension at this temperature, under agitation, for a time sufficient to give rise to depositing of the copper on the intermediate catalyst, thereby forming the catalyst; and

(g) recovering the catalyst, the concentration of the metals in the aqueous solution of step (a) and the copper solution of step (f) being such that the catalyst comprises:

(i) 0.5 to 5 weight % ruthenium;

(ii) 1 to 10 weight % of a metal selected from the group consisting of palladium, platinum and rhodium; and

(iii) 0.5 to 2.5 weight % copper, the weight % of copper being lower than the weight % of the metal in (ii).

Dwg.0/0

Derwent Class: E17; J04

International Patent Class (Main): B01J-000/00; B01J-023/46; B01J-023/74; B01J-023/89; C07C-027/00

International Patent Class (Additional): B01J-021/18; B01J-023/40; B01J-023/72; C07C-029/00; C07C-031/18

9/7/24 (Item 8 from file: 351)

DIALOG(R) File 351:Derwent WPI

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007280384

WPI Acc No: 1987-277391/198739

Sorbitol prepn. from hydrolysed starch solns. - by two-stage hydrogenation over nickel, then ruthenium after acidification

Patent Assignee: PFIZER INC (PFIZ); TOYO TIRE & RUBBER KK (TOYF)

Inventor: GAUTHIER G J; MICELI J D

Number of Countries: 016 Number of Patents: 008

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
US 4694113	A	19870915	US 86870462	A	19860604	198739 B
EP 249364	A	19871216	EP 87304757	A	19870529	198750
JP 62294631	A	19871222	JP 87138040	A	19870601	198805
CA 1271781	A	19900717				199034
EP 249364	B	19910612				199124

DE 3770699	G	19910718			199130
ES 2022349	B	19911201			199202
JP 92027220	B	19920511	JP 87138040	A	19870601 199223

Priority Applications (No Type Date): US 86870462 A 19860604  
 Cited Patents: A3...8902; CH 394142; EP 7100; FR 1231029; GB 2097390;  
 No-SR.Pub

## Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
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US 4694113	A		6		
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EP 249364	A	E			
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Designated States (Regional): AT BE CH DE ES FR GB GR IT LI LU NL SE

EP 249364	B				
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JP 92027220	B		8	C07C-031/26	Based on patent JP 62294631
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Abstract (Basic): US 4694113 A

Sorbitol (I) is prep'd. from a 50-98.5 DE hydrolysed starch (II) soln. by (a) and (II)-soln. is hydrogenated over an Ni catalyst at 120-160 deg. C/pH 3-7/35-140 bar until the reducing sugar content is below 5%; (b) Ni catalyst is removed, and the pH is adjusted to 1-2.5; and (c) the acidified soln. is hydrogenated over an Ru catalyst at 100-180 deg. C/35-140 bar until H<sub>2</sub> uptake is complete, then the Ru is removed.

ADVANTAGE - The 2-stage hydrogenation process allows expensive Ru catalyst to be recovered and recycled, and a more complete conversion of glucose and its oligomers is obtd. In addn., the process can be used with incompletely hydrolysed starch solns.

Abstract (Equivalent): EP 249364 B

A process for production of sorbitol from a 50 to 98.5 DE (Dextrose Equivalent) hydrolysed starch solution which comprises the steps of (a) hydrogenation of said hydrolysed starch solution in the presence of a catalytic amount of nickel at a pH in the range of 3.0 to 7.0, at 120 to 160 deg. C, and a pressure of from 500 to 2000 psig (35 to 140 bars), until the reducing sugar content of the mixture is below 5 percent; (b) removal of nickel catalyst and acidification of the resulting solution to a pH in the range of 1.0 to 2.5; (c) hydrogenation of the acidified solution in the presence of a catalytic amount of ruthenium at 100 to 180 deg. C, and a pressure of from 500 to 2000 psig (35 to 140 bars) until hydrogen uptake is substantially complete, and removal of said ruthenium. (14pp)

Derwent Class: D17; E17

International Patent Class (Main): C07C-031/26

International Patent Class (Additional): B01J-023/46; B01J-025/02;  
 C07B-061/00; C07C-029/13; C07C-029/132

9/7/25 (Item 1 from file: 357)

DIALOG(R) File 357:Derwent Biotech Res.

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0041961 DBA Accession No.: 85-12750

Combined action of an enzyme and a metal catalyst on the conversion of D- glucose D- fructose mixtures into D-mannitol - for use as sweetener (conference paper)

AUTHOR: Makkee M; Kieboom A P G; Van Bekkum H

CORPORATE SOURCE: Laboratory of Organic Chemistry, Delft University of Technology, Julianalaan 136, 2628 BL Delft, The Netherlands.

JOURNAL: Carbohydr.Res. (138, 2, 237-45) 1985

CODEN: CRBRAT

LANGUAGE: English

ABSTRACT: Processes involving both a bio- and chemo- catalyst have been applied to the conversion of D- glucose /D- fructose mixtures into D-mannitol for use as sugar -free sweetener and in pharmaceutical preparations. To investigate this further, the use of 3 commercially available immobilized D- glucose -isomerases (EC-5.3.1.18), Maxazyme GI-Immobil. and Sweetzyme Q (which consist of whole cells containing D- glucose -isomerase immobilized in gelatin-glutardialdehyde and glutardialdehyde matrixes, respectively) and Optisweet 22, (consisting of pure D- glucose -isomerase immobilized on a silica support) and 5 different hydrogenation catalysts , 5% Ru /C, 5% Pt /C, 10% Ir/C, 5% Os/C and 20% Cu /silica was evaluated. Good D-mannitol yields (62-66%) were obtained using Optisweet 22 as bio- catalyst in combination with a copper on silica chemo- catalyst , and under the following reaction conditions: water, pH approximately 7, 70 deg, 50 kg/sq cm of hydrogen, trace amounts of buffer, Mg(II), borate, and EDTA. Non-enzymic isomerization and degradation reactions were negligible under these reaction conditions. (8 ref)

9/7/26 (Item 1 from file: 434)  
 DIALOG(R)File 434:SciSearch(R) Cited Ref Sci  
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08992704 Genuine Article#: P9258 Number of References: 105  
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 Author(s): GARFIELD E  
 Corporate Source: INST SCI INFORMAT/PHILADELPHIA//PA/19104  
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